

REMARKS

The Office Action in the above-identified application has been carefully considered and this amendment has been presented to place this application in condition for allowance. Accordingly, reexamination and reconsideration of this application are respectfully requested.

Claims 1–3, 5–16, and 18–26 are in the present application. It is submitted that these claims are patentably distinct over the prior art cited by the Examiner, and that these claims are in full compliance with the requirements of 35 U.S.C. § 112. The changes to these claims, as presented herein, are not made for the purpose of patentability within the meaning of 35 U.S.C. sections 101, 102, 103 or 112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicants are entitled. Claims 4 and 17 are canceled.

The drawings were objected to because the elements in Figure 1 were not labeled. In response, Applicants respectfully submit the attached replacement drawing sheet, containing Figures 1-3, which adds appropriate labels to reference elements 1 and 3-6 of Figure 1. Accordingly, Applicants believe this objection has been overcome.

The Abstract was objected to because of various legal phraseology. In response, Applicants have amended the Abstract in accordance with the Examiner's comments. Applicants have also deleted the "(Figure 6)" paragraph following the Abstract. Please note this paragraph was included to indicate the preferred figure for the cover of the issued patent. Accordingly, Applicants believe this objection has been overcome.

Claims 1–26 were objected to under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims were further objected to because of various informalities. In response, Applicants have amended the claims in accordance with each of the Examiner's comments. Therefore, Applicants believe these objections have been overcome.

Claims 1–4 and 14–17 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ballarin et al. (EP 0 702 467 A1). Claims 1–5 and 14–18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Bergmans et al. (WO 98/10421). Claims 5, 8, 9, 18, 21, and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ballarin. Claims 7 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ballarin in view of Nakajima et al. (U.S. Patent 5,005,144).

In response, independent claims 1 and 14 have been amended to include the limitations of canceled dependent claims 4 and 17, respectively, and to recite the additional feature that cross correlation of the repetition patterns is performed “with a complex conjugation of an expected repetition pattern” (Claims 1 and 14). This additional feature is disclosed in the specification between page 13, line 24 and page 14, line 1 and between page 16, line 25 and page 17, line 17.

The present invention uses a reference symbol comprising at least two repetition patterns, whereby one of the repetition patterns is phase-shifted relative to another repetition pattern. The two phase-shifted repetition patterns are cross correlated with a complex conjugation of the expected repetition pattern. In this manner, the phase change information (corresponding to the

relative phase-shift) of the two patterns in the reference symbol is used to detect a cross correlation peak.

By contrast, Bergmans discloses using a known repetition pattern and a bit-by-bit inverse of the repetition pattern. Bergmans fails to disclose using a complex conjugation of the expected repetition pattern, but rather uses the repetition pattern itself for synchronisation.

Likewise, Ballarin discloses using a reference sequence comprising different repetition patterns (A, B, C, D) which can be used as an initialization sequence for synchronisation. Ballarin fails to disclose correlating the repetition patterns with a complex conjugation of the expected repetition pattern. Furthermore, Ballarin does not disclose the use of a repetition pattern that is phase-shifted in relation to another repetition pattern as claimed in the present invention.

Nakajima is relied on solely to meet the present invention's averaging means limitation. Accordingly, the combination of Ballarin and Nakajima fail to obviate the present invention for the reasons discussed hereinabove.

Therefore, for at least these reasons, Ballarin, Bergmans, and Nakajima, alone or in combination, fail to anticipate or render obvious the present invention and claims 1–3, 5–16, and 18–26 should now be allowed.

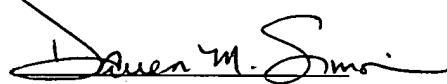
In view of the foregoing amendment and remarks, it is respectfully submitted that the application as now presented is in condition for allowance. Early and favorable reconsideration of the application are respectfully requested.

No fees are deemed to be required for the filing of this amendment, but if such are, the Examiner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account No. 50-0320.

If any issues remain, or if the Examiner has any further suggestions, he/she is invited to call the undersigned at the telephone number provided below. The Examiner's consideration of this matter is gratefully acknowledged.

Respectfully submitted,
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